

# KANSAS HERPETOLOGICAL SOCIETY NEWSLETTER NO. 95

FEBRUARY 1994

## ANNOUNCEMENTS

### TOEPFER PRODUCES NEW CURRICULUM FOR AMPHIBIAN CENSUSING

KHS Secretary/Treasurer Karen Toepfer has, after receiving a grant from the U.S. Environmental Protection Agency, prepared an outstanding new curriculum for ninth and tenth grade students. Entitled *Amphibians as Bio-indicators: An Amphibian Population Survey*, this curriculum addresses the current declining amphibian populations problem and provides an excellent course in the scientific method and how to study the problem. KHS members Larry Miller, John Lokke, and Joe Collins provided significant services in producing this curriculum, which targets 24 states in the U.S. (primarily the eastern half of the country). With luck (and an additional grant), Karen may be able to develop the curriculum for the remaining 26 states. Those interested in offering and teaching this curriculum should contact Karen at the address and phone number on this inside front cover of this Newsletter. If you want to make an impact on declining amphibian problem, I can't think of a better place to start. Congratulations, Karen, and keep up the good work.

### NEW PUBLICATIONS

The new year greets us with a spate of new volumes for all of those itching to spend those vast sums of Christmas money received.

Foremost among these is a handsome little publication by KHS members Joseph T. and Suzanne L. Collins. Entitled *Reptiles and Amphibians of Cheyenne Bottoms*, this 120-page book is completely illustrated with color photos and covers the 27 species of herps known to occur at the Bottoms. This volume also kicks off a series of publications on the natural history of Cheyenne Bottoms, one of the most important natural wetlands in the world. *Reptiles and Amphibians of Cheyenne Bottoms* retails for \$12.95 and can be ordered from Hearth Publishing, 135 N. Main, Box L, Hillsboro, Kansas 67063. Add \$2 shipping and handling and Kansas residents add 4.5% sales tax.

Surrey Beatty & Sons announces publication of *The Biology and Evolution of Australian Lizards* by Allen Greer. At 264 pages and clothbound, this book summarizes the current knowledge of the 475 known species of Australian lizards and covers a variety of topics including phylogenetics, behavior, ecology, morphology, natural history, and physiology and is sure to include Greer's unique

perspectives on phylogenetics as he includes snakes as carnivorous legless lizards in this volume. The opus lists for A\$60 + A\$7.50 postage and can be ordered from Surrey Beatty & Sons, 43 Rickard Road, Chipping Norton, NSW 2170, Australia.

*Endoglyphs and Other Major Venomous Snakes of the World. A Checklist* by P. Golay, KHS Honorary Life Member Hobart Smith, D. G. Broadley, J. R. Dixon, C. McCarthy, J. C. Rage, B. Schätti, and M. Toriba has just been released by Azemiops S.A. The subjects of this tome are endoglyph snakes (venomous species with a closed groove in the fang) and medically significant ectoglyphs (those with an open groove in the fang). This catalogue of the potentially dangerous snake of the world covers 864 living or fossil species an subspecies and lists original citations, type localities, and updated ranges. Exhaustive synonymies and present location of types are also included. There are two editions of this 496 page work: regular, clothbound for 75 SwissFrancs and a leatherbound patron's edition (only 120 copies) for 150 SwissFrancs (approximately \$50 and \$100 respectively). Overseas orders add 10 CHF for surface mail and 15 CHF for airmail. Order from Azemiops S.A., Herpetological Data Center, 8, route des Ravières, 1258 Perly, Geneva, Switzerland.

For those of you not awash in vast sums of cash, the Seattle Audubon Society has recently published *Amphibians of Washington and Oregon* by W. Leonard, H. Brown, L. Jones, K. McAllister, and R. Storm. Copies of this 168-page publication with 154 color photos are available for \$12. This book covers identification, similar species, distribution, and habit and habitats for 33 species of amphibians in this area. It is also the first publication to cover the newly described family Rhyacotritonidae (Torrent Salamanders). *Amphibians of Washington and Oregon* will be available in May 1993 and can be ordered from Seattle Audubon Society, 8028 35th Avenue SE, Seattle, Washington 98115.

Serpent's Tale Books announces publication of *A Field Guide to the Amphibians and Reptiles of Madagascar* by Frank Glaw and Miguel Vences. Only 1,000 copies of this privately published volume are available. This 331-page guide contains 130 color photos, 300 black-and-white photos and covers the biology and distribution of all Madagascan amphibians, including the description of five new anurans. Tables and keys are also included. Until 15 May 1993, this book is available for \$59, after which it will be sold for \$69. Order from Serpent's Tale Books, 464

Second Street, Excelsior, Minnesota 55331, phone (612)470-5008.

T. F. H. Publications, Inc. has recently published two handsome books by W. P. Mara. The first is *Venomous Snakes of the World* and is 224 pages long with short contributions by Roger Conant, Sherman Minton, KHS Honorary Life Members Henry Fitch and Hobart Smith, and KHS contributor Joe Collins. The volume is profusely illustrated with color photos in a new finishing process called Foto-Finish. These photos are a vast improvement in quality, content, and composition, over previous T.F.H. efforts.

The second book is *A Basic Book of Amphibians: Look-and-Learn* and is obviously intended as an introduction to basic facts about amphibians. It, too, is well-illustrated with high-quality photographs.

Although prices for these tomes were not available at press time, you can obtain prices by writing to T. F. H. Publications, Inc., One T. F. H. Plaza, Neptune, New Jersey 07753.

#### CONSERVATION BIOLOGY WORKSHOP AT KU

The Kansas chapter of The Wildlife Society announces that it will be hosting a workshop on conservation biology at the University of Kansas on 25 February from 1:30-5:00 p.m. at Raymond Nichols Hall. The plenary speaker will be Stanley L. Temple of the Society for Conservation Biology. Panel presentations will also be made by KHS's Joe Collins, Craig Freeman, Cynthia Annette, Daphne Fautin, Frank Cross, John Zimmerman, and Elmer Finck. The chair of the workshop is Ed Martinko.

There will also be a paper session, held in conjunction with the Kansas chapter of the American Fisheries Society, at the Quality Inn in Lawrence from 8:30-11:45 a.m. Those wanting more information about these meetings and this workshop should contact Lloyd B. Fox at (316)342-0658 or (316)528-3849.

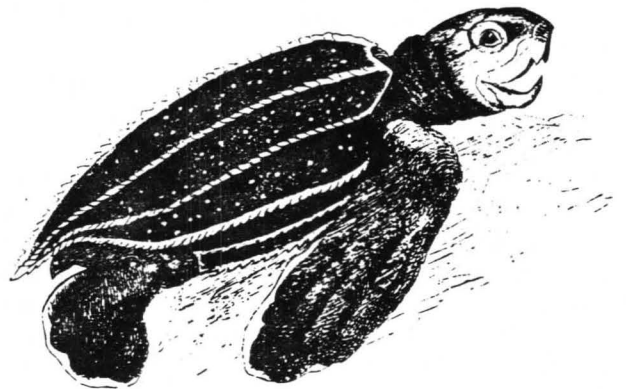
#### 1994 CONFERENCES

The annual meeting of the Southwestern Association of Naturalists will be held beginning 21 April on the campus of Emporia State University. Those wishing to attend the meeting or wanting more information about this interesting group should contact David Edds, Division of Biological Sciences, Emporia State University, Emporia, Kansas 66801

The 17th Annual All-Florida Herpetology Conference will be held this year on 9 April at Reitz Union Auditorium on the campus of the University of Florida in Gainesville.

This conference is co-sponsored by the Florida Museum of Natural History and the Gainesville Herpetological Society. Speakers include Steve Hammack of the Fort Worth Zoo, Julian Lee of the University of Miami, David Hardy of the Tucson Herpetological Society and several others. Three workshops on varied topics will also be presented. Registration costs vary from \$19-\$7. Those wanting more information on this interesting conference should contact: David Auth, Division of Herpetology, Florida Museum of Natural History, University of Florida, Gainesville, Florida 32611 or call him at (904)392-1721.

The International Herpetological Symposium, Inc. announces that the 18th International Herpetological Symposium will be held on 16-19 June this year in New Orleans. Keynote speaker will internationally-renowned herpetologist Harold Cogger. Speakers, who will cover all aspects of herpetological natural history, include Chris Mattison, Ernie Liner, Aaron Bauer, Yehuda Werner, Ron Tremper, Merle Cox, and many others. For registration information contact Richard Ross MD, International Herpetological Symposium, P.O. Box 2227, Stanford, California 94309.



## KHS BUSINESS

### RESULTS OF KWP COMMISSION MEETING ON RATTLESNAKE ROUNDUP REGULATIONS

On the evening of 21 January, 13 KHS members gathered at the monthly meeting of the Kansas Wildlife and Parks Commission in Topeka to witness, testify, and, hopefully, change proposed regulations concerning the commercialization of Prairie Rattlesnakes in Kansas. Most left at the end of the long evening disappointed, frustrated, and angry, as the Commission chose to adopt regulations that ignored the advice and biological data of herpetologists and population biologists to take a conservative path and limit the probable damaging impact of these regulations. Once again, politics superseded the truth.

Under the watchful eye of one of Senator Sheila Frahm's minions, the Commission adopted regulations that opened the western third of the state to rattlesnake commercialization; will allow the too large bag and possession limits of 10 and 20 Prairie Rattlesnakes, respectively; set no maximum size limit; allows a two-and-one-half month period in spring to stockpile snakes; allows a one month period in which hold a "roundup"; and will expose participants to snakebite because hand collecting will be allowed. Recommendations to limit the area of the hunt to the county and surrounding counties in which it was held; limit bag and possession to five and 15 snakes; set a maximum size limit at 30 inches; reduce the hunt period to 1 1/2 months in the summer; reduce the period of the event to nine days; and disallow hand collecting were all rejected or ignored. Minor concessions were given in reducing the area for commercialization from the western half of the state to the western third and reducing the proposed limits from 15 and 30 snakes to 10 and 20 snakes.

So, where does that leave us? At this time, obviously, the hunt will go on. The Commission, generally a fair and conscientious group, has found itself at the mercy of politics and dollars. The less said about the Department of Wildlife and Parks less-than-courageous behavior in protecting our natural resources, the better.

In spite of this discouraging turn of events, there has been some good to come out of it. First, KHS has established itself as a legitimate voice for conservation in Kansas (not that we weren't before). Its members have sacrificed their time and efforts to be advocates for those creatures we care about. In particular, David Edds, Larry Miller, David and Allison Reber, Al Volkmann, Karen Toepfer, Robert F. Clarke, Daren Riedle, Randy Reiserer, Mary Kate Baldwin, and Ann Rundquist must be commended for their efforts in trying to knock a little sense into some closed minds. All these people acquitted themselves well and represented the Society superbly. KWP Commis-

sioners George Hinch and Al Ward consistently opposed the commercialization of a wildlife species and must also be commended as outstanding stewards of our natural resources. Let us hope that we get more people like them on the next Commission.

KHS also discovered worthy allies in the Kansas Wildlife Federation, the Kansas Audubon Council, the Sedgwick County Zoological Society, and the Kansas chapter of the Sierra Club. We must also thank them for their efforts in our behalf.

Now, where do we go from here? We may have lost a couple of battles, but we are not done yet. I can say that your Executive Council is exploring some promising options in reducing the impact of this scurrilous event. We will keep you posted as things unfold.

This is also an election year. Every state legislator is up for re-election in 1994. This is a particularly scary time for those concerned with wildlife and conservation issues in Kansas, as, due to a number of events, groups such as ours are particularly vulnerable to some well-organized and well-financed forces that would seek to destroy what little environmental gains that have been made in Kansas in the past 20 or so years. Please remind your legislators of your concerns and let them know that you will make the final decision on their fates as politicians at the ballot box in November. These "wise abusers" must not be allowed to win.

— EMR

### 1994 FIELD TRIP

The 1994 KHS Spring Field Trip will be held in the southeast corner of the state in Cherokee County at Schermerhorn Park in Galena on 30 April-1 May. The primary activity at this field trip will be a cleanup of Schermerhorn Cave at the park. Through the auspices of Bill Minnerath, the U.S. Fish and Wildlife Service has provided funds and services to restore Schermerhorn Cave from environmental damage over many decades of human abuse and misuse. Schermerhorn Cave is the most herpetologically important site in Kansas, being the home of four of the state's five endangered and threatened salamanders. The KHS Executive Council has decided to officially endorse this cleanup and encourages all KHS members to participate. In light of all the negative things which have happened to our state's herpetofauna in the past few years, this activity offers a small ray of hope for those who wish to make a positive impact.

Cherokee County also offers other natural delights. The Ozark Plateau enters Kansas here and occupies approximately 24 square miles. The Spring River and Shoal

Creek are two of the most beautiful waterways in the state and make for marvelous canoeing. Herpetological rarities that may be observed in the county include the following: Grotto Salamander (*Typhlotriton spelaeus*), Cave Salamander (*Eurycea lucifuga*), Longtail Salamander (*E. longicauda*), Many-ribbed Salamander (*E. multiplicata*), Eastern Newt (*Notophthalmus viridescens*), Spring Peeper (*Pseudacris crucifer*), Green Frog (*Rana clamitans*), Crawfish Frog (*R. areolata*), Eastern Narrowmouth Toad (*Gastrophryne carolinensis*), Broadhead Skink (*Eumeces laticeps*), Rough Earth Snake (*Virginia striatula*), Smooth Earth Snake (*V. valeriae*), Redbelly Snake (*Storeria occipitomaculata*), Cottonmouth (*Agkistrodon piscivorus*), and Timber Rattlesnake (*Crotalus horridus*). In addition, there is a possibility that the following species may also occur in this area: Ringed Salamander (*Ambystoma annulata*), Oklahoma Salamander (*Eurycea tynnerensis*), Western Slimy Salamander (*Plethodon albagula*), Hurter's Spadefoot (*Scaphiopus hurterii*), and Southern Prairie Skink (*Eumeces obtusirostris*).

Camping is allowed at Schermerhorn Park and there are restroom facilities available. Showers may or may not be working (a quick dip in nearby Shoal Creek should cover that). Lodging is available in Baxter Springs and nearby Joplin, Missouri. Food may be found in Galena, Riverton (the excellent Spring River Inn), Baxter Springs, and Joplin.

There are several routes by which to get to Schermerhorn Park. If you are coming from the north, take U.S. 69 south to Riverton. Turn left (east) at Ks. rt. 26/U.S. rt. 66 (yes, the *real* Route 66). When you arrive at Galena, turn right (south) at Ks. rt. 26 and drive approximately 1.5 mi. Schermerhorn Park will be to your left (just before driving over the Shoal Creek bridge). Those coming from the west should get on U.S. rt. 160 (Wellington exit off the Turnpike) and head east. At the junction of U.S. rt. 69 (~5 mi E Cherokee), turn right (south) and proceed to Riverton. Follow the previous directions to the park. Those coming from the west and wanting a more scenic route may wish to take U.S. 166 along the extreme southern part of the state. At the junction of rt. 166 and st. st. 26 (~4 mi E Baxter Springs), turn left (north), go over the Shoal Creek bridge and the park will be immediately to your right (east). Those wanting additional information may call me at (913)832-9093.

— EMR

#### GLOYD-TAYLOR SCHOLARSHIP AVAILABLE

KHS is soliciting nominations for its scholarship, the Gloyd-Taylor Award in Herpetology. The scholarship is

named in honor of two of Kansas' greatest herpetologists, Howard K. Gloyd and Edward Harrison Taylor.

Nominations for this award are open to any student enrolled in an accredited educational institution in Kansas or any KHS member enrolled in any accredited educational institution outside of Kansas. Students from primary school through university are eligible. Nominations should include typewritten details, not to exceed two pages, of the nominee's qualifications, plus name and address of the nominee and nominator. Qualifications include, but are not limited to, academic record, herpetological activities, and future plans in herpetology. Self-nomination is excluded.

All nominations should be submitted to KHS President Alan Volkmann, Melrose Lane, Wichita, Kansas 67212 no later than 1 September of this year. The KHS Executive Council will make the final decision and announce the scholarship winner at the KHS annual meeting, at which time all nominees and nominators will be recognized. If no qualified students are nominated, no award will be made.

Those wishing to contribute to the scholarship fund should send their contributions to KHS Secretary/Treasurer Karen Toepfer and note that the contribution is specifically for the Gloyd-Taylor scholarship fund. All contributions are tax-deductible.

#### HERPCOUNTS AND AMPHIBIAN CENSUSES FOR 1994

There is a slight change in the format for this year's Herp Counts sponsored by KHS. As you know, Joe Collins has tabulated and presented the results from the Herp Counts in this Newsletter for the past five years. In spite of my screwup in the last Newsletter for 1993's counts, Joe has done an admirable job of collating and publishing this vital information. As he feels the format and presentation of the counts is well-established and also feeling the press of other duties, he is passing the torch, so to speak. I have agreed to take over this project for the time being, so from hereon, send the results of your annual KHS Herp Counts to me at 1705 Haskell, Lawrence, Kansas 66044. The period of the counts remains the same, April-May, and no other changes in format are planned.

Enclosed you will find a copy of the data sheet for the Kansas Amphibian Census. As always, make as many copies as necessary and be sure to take them with you in your excursions and field work around the state. Remember that this is an on-going, year-round project and data can be gathered at any time. Although spring and early summer are obviously the best time to gather amphibian data, it is also important that we receive information from other times of the year. Please keep this in mind when you are out and about later in the year. As with the Herp Counts, send these data sheets to me.



I would like to note that we now have the largest database on amphibian populations in the northcentral region of the United States and that this data is regularly forwarded to the Declining Amphibian Populations Task Force. Although it appears that amphibian populations in this area appear to be stable, this situation could change at any time and more information is always needed. Although we do have the largest database for this area, it isn't large enough yet to accurately track or predict trends at this time, so please make an effort to contribute your information.

—EMR

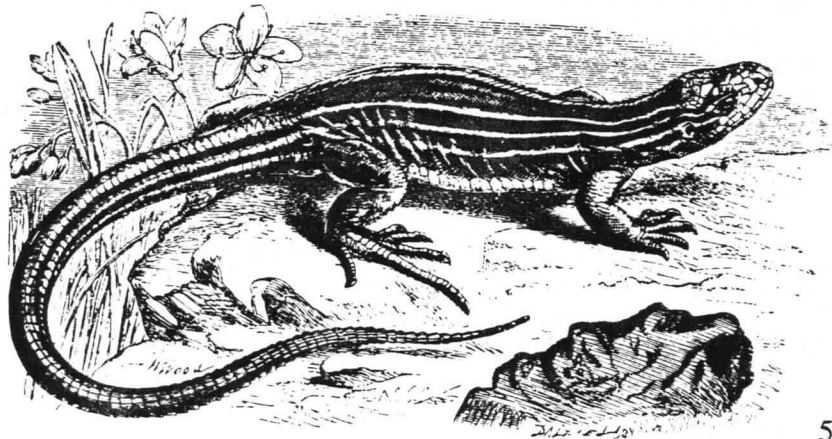
### WILDLIFE FEDERATION NEEDS YOUR HELP

As you will note in two articles in the News of the World section of this Newsletter, wildlife conservationists have lost one of their greatest allies and frontline warriors. Jerry Hazlett, executive director of the Kansas Wildlife Federation, has resigned as the group's full-time lobbyist. Jerry was the only full-time lobbyist devoted to wildlife issues in Kansas and was perhaps our most effective voice for all wildlife, including non-game species, in the state. He was an early supporter of KHS' efforts to effectively control and regulate the Sharon Springs rattlesnake "roundup."

Jerry was a casualty of the KWF's successful, but extremely expensive, effort to protect Cheyenne Bottoms. To protect the KWF from bankruptcy, he was unfortunately forced to lay himself off.

If you are not a member of KWF now, I urge you to join. If you are a member, please try to find a little extra money to contribute to the group. With luck, KWF will be able to get back on its feet financially and rehire Jerry. With all the abysmal goings on in the state Legislature and with the recent alarming trends to knuckle under to that body's pressures by vested state wildlife authorities, we can ill afford not to have someone out there who is willing and able to keep these people honest.

—EMR



## KHS BRINGS YOU GREAT NEWS OF THE WORLD

### RATTLESNAKE HUNTS, FISHING LICENSES ON AGENDA

There will be more than one hot topic on the agenda when the Kansas Wildlife and Parks Commission meets Thursday in Topeka.

The topics include free fishing licenses for non-resident turkey hunters; the capture, slaughter and commercial sale of Prairie Rattlesnakes and their parts; and deer depredation permits issued to controlled shooting areas. ...

The two regulations likely to inspire the most debate during the evening session are the free fishing licenses for non-resident turkey hunters, and the proposed regulation for the commercial harvest of Prairie Rattlesnakes.

Bill Anderson, a commissioner from Fairway, initiated the regulation on free fishing for non-resident turkey hunters.

At a commission meeting late last year, Anderson said the fishing privileges would amount to a "value-added" incentive for non-residents, something already being done in other states.

During the November commission meeting in Beloit, Bill Long, president of the 150-member Riley County Fish and Game Association, objected to the free licenses, saying they amount to another exemption, something Wildlife and Parks cannot afford, considering its financial problems.

"We just don't think that it's necessary," Long said. "Our out-of-state fishing permits aren't that expensive anyway."

Ed Augustine, president of the Geary County Fish and Game Association, was more to the point in his criticism.

"I think it's stupid," Augustine said. "The reason why is that two years ago the agency was stumping around to raise license fees, and now they want to hand out an exemption."

Jim Holderman, commission chairman from Wichita, said recently he is rethinking the free license issue because he didn't realize that a five-day non-resident fishing license cost only \$13 and that a 24-hour license was \$3.

The issue regarding the commercialization of Prairie Rattlesnakes will also come to a head during the evening session. During the 1993 legislative session, rattlesnake hunt proponents from Sharon Springs successfully lobbied their representatives to create a law allowing the commercial harvest and sale of rattlesnakes.

Lacking the clout to stop the legislation, Wildlife and Parks was forced to allow the hunt in 1993 and told to develop regulations to govern future hunts.

The regulations that Wildlife and Parks will offer to the commission allow for a season from April 1 through

June 15. The harvest area would include all of Kansas west of U.S. 81, except for Morton County.

Wildlife and Parks also proposes a daily bag limit of 15 snakes, a possession limit of 30, and a length limit of no less than 18 inches.

Members of the Kansas Herpetological Society and the Kansas Audubon Council have maintained that not enough is known about Prairie Rattlesnake populations to make an informed decision on the biological impact the hunt would have.

David Edds, [past] president of the KHS, is upset and disappointed by the proposed regulations.

"We were hoping, and the commissioners suggested, a possibility of limiting it to the count of the hunt, plus the counties adjacent to that county rather than opening it statewide," Edds said. "It seems that not one of our suggestions have been incorporated."

None of it surprises me anymore. It's been pretty cut and dry all along. I guess they consider it a threat or political issue. I don't know what the Senate is holding over their head, but the people out there definitely have the secretary's ear, and when they speak, he jumps."

The area of the hunt was restricted to the western two-thirds of Kansas to prevent snake hunters from collecting Timber Rattlesnakes in the eastern part of the state. Timber Rattlesnakes are under consideration for inclusion on the threatened and endangered species list.

Morton County was left out of the harvest area because of concerns voiced by Joe Hartman, district ranger for the U.S. Forest Service. Hartman oversees the more than 100,000 acres of public land in the Cimarron National Grasslands in Morton County.

He said a number of rattlesnakes turned in during the 1993 hunt at Sharon Springs were taken from the Cimarron National Grasslands.

In a letter to Wildlife and Parks, he said, "If the Commission does enact regulations that the Forest Service determines to be biologically unsound and detrimental to the endemic rattlesnake population this District may explore the option of imposing more stringent regulations to protect the habitat and ecosystems on National Forest Systems land."

Hartman's recommendations included a daily bag limit of five snakes, scheduling the season for optimal harvest based on the best biological information available, and no commercial sale of rattlesnakes or their parts within the state. ...

— Wichita Eagle, 16 January 1994  
(submitted by David Edds, Emporia)

## RATTLER HUNTS WILL FACE NEW RESTRICTIONS

Lacking biological data but pressured by a legislative mandate, the Kansas Wildlife and Parks Commission voted Thursday to approve regulations governing the commercial harvest of Prairie Rattlesnakes.

The new regulations will allow any town west of U.S. 283 to sponsor a Prairie Rattlesnake hunt after receiving a special event permit from the Kansas Department of Wildlife and Parks. Rattlesnakes taken during those special events must be gathered within the area west of U.S. 283.

...

Much of the debate opposing rattlesnake hunts comes from the Kansas Herpetological Society's concern that little is known, biologically, about Prairie Rattlesnakes, their reproductive rates, and population densities. George Hinch, a commissioner from Elkhart, agreed.

"This evening we found ourselves, by our own admission, developing regulation, not just for the hunting of a species, but for the commercial harvest of a species that we know very little about," Hinch said.

"I hate to see the regulation and protection of wildlife become politicized."

Hinch's comments stem from his frustration of having to institute regulations or face another political backhand from the Legislature.

Last year, in a bill introduced by Sen Sheila Frahm, R-Colby, the Legislature circumvented the commission's authority by passing a law and short-term regulations governing the commercialization of rattlesnakes for a hunt at Sharon Springs.

Wildlife and Parks and the commission were instructed by the Legislature to enact future regulations in 1994, or have the Legislature regulate the hunt for them.

Bill Anderson, a commissioner from Fairway, said the commission had no choice but to develop the regulations.

"I respect and appreciate what you're doing," Anderson said to Hinch. "The other side of it is that we have a very clear legislative mandate, and the values that are normally part of our process have certainly been taken away from us."

Two concessions to opponents of the hunt came at the suggestion of commissioner Carl Coonrod of Elk Falls.

Coonrod was successful in narrowing the hunt boundaries from about half of the state to about the western third of the state.

This limits the hunt to counties west of U.S. 283. The boundary initially proposed by Wildlife and Parks would have included all counties west of U.S. 81.

Neither proposal included Morton County. Much of that land falls under the protection of the U.S. Forest Service, which manages the Cimarron National Grasslands.

Also, the bag limit of 15 snakes per day was reduced to 10.

Judy Withers, organizer of the Sharon Springs rattlesnake roundup, said she was pleased with the outcome.

"We have a start," Withers said. "I would like to see the boundaries extended, and the bag limits upped, but we can work with this."

"What we really don't want to promote is the cruelty and circus atmosphere. It's just a festival with a little different twist.

"We've been there 34 years, and up until now we just killed them. Now we catch them and use them for food. We have rattlesnake chili and chicken-fried snake."

The modifications to the original proposal did not satisfy opponents of the hunt.

"The bottom line is that the people in Sharon Springs got what they wanted, and Senator Frahm got what she wanted," said David Reber, of Lawrence, president[-elect] of the Kansas Herpetological Society.

Eric Rundquist, editor of the group's newsletter, was frustrated that Wildlife and Parks and the commission had sought the expertise and [advice] of herpetologists, then ignored it when it came time to enact the regulations.

"It's pretty obvious to me that we're not dealing with truth or reality," he said. "It's what a small special interest group wants." ...

— Wichita Eagle, 23 January 1994  
(submitted by Ann Rundquist, Lawrence)

## LEGISLATIVE WATCHDOGS OUTNUMBERED

When the 1994 Legislative session begins Monday, there will be an enormous gap in the already thin line of folks who protect our natural resources from well-organized, well-financed special interest groups who could [not] care less about the viability of our air, water, and creatures like the Neosho Madtom.

For 10 years that hole was ably filled by Jerry Hazlett, the knowledgeable, feisty, sometimes explosive, but ever vigilant, former executive director for the Kansas Wildlife Federation.

The KWF is a 2,000 member, non-profit organization that deals with an array of issues, from gun control to water quality to endangered species. Its membership includes hunters and non-hunters, anglers, birders, and a wide variety of other folks who care about the outdoors.

Hazlett was laid off by the federation in late December. John Gottschamer, KWF president, cited financial problems brought on by extensive legal expenses incurred in KWF's effort to secure senior water rights for Cheyenne Bottoms Wildlife Area.

In a press releases, Gottschamer complimented Hazlett for his untiring efforts to protect our natural resources. He

said that Hazlett's job of monitoring and working for or against legislation would be filled by part-time volunteers.

While Kansas has several natural resource organizations that keep an eye on the legislative process, only KWF, through Hazlett, has proven to be a daily player on virtually every issue. The Kansas Department of Wildlife and Parks usually comes in a wishy-washy second.

During the past four years, I have attended all but four meetings of the Kansas Wildlife and Parks Commission. At those meetings, I could always count on talking with Hazlett on a variety of issues. Representatives of other organizations attended the meetings on an as-needed-for-a-particular-issue basis.

While I understand KWF's decision to reduce its operating costs, I believe that it is imperative that it, as well as the other organizations, have a full-time person monitoring legislation as well as someone at each commission meeting.

Fortunately, the Kansas Sierra Club and the Kansas Natural Resources Council have sensed the potential dangers in 1994 and have hired Bill Craven to be their full-time representative to monitor the legislative process.

Craven will also need to keep an eye on Wildlife and Parks to insure that the agency is fulfilling its mandate to protect wildlife, develop habitat, and spend fish and wildlife funds properly.

The most dangerous piece of legislation already on the table for the 1994 session is Senate Bill 293. The bill, called the "takings bill," is already out of the Senate and is scheduled for consideration by the House.

If passed, the bill would add another level of state bureaucracy to laws that protect water quality and wildlife, and could potentially require the state to financially compensate businesses and landowners not having to comply with the law.

In 1993, KDWP was forced, by the legislature, to use \$38,000 in fishing and hunting license fees to pay lost earnings to a gravel bar dredger who was prevented from destroying Neosho Madtom habitat on the Cottonwood River.

Wildlife and Parks was required by the U.S. Fish and Wildlife Service to stop the dredger because the Madtom is on the federal list of threatened and endangered species. KDWP did what the feds required it to do, and Kansas hunters and anglers paid the freight because legislators felt that the dredger deserved financial compensation.

That legislative action, which passed 33-6 in the Senate and 114-10 in the House, is the kind of thing that could become routine if this bill is passed. Despoilers of our air, water quality, and wildlife will be required to comply with existing laws, and the people of Kansas could be forced to pay for their compliance.

This is no time to hand over the job of environmental watchdog to a group of part-time volunteers. This is the time for hunters, anglers, hikers, bikers, and birders to unite in an

effort to protect the things we love most. If we don't, we'll have the devil to pay.

—Steve Harper, Wichita Eagle, 9 January 1994

(submitted by David Edds, Emporia)

## WILDLIFE GROUP CAN USE YOUR HELP

The battle to protect Cheyenne Bottoms and its water is long and bloody. Along with the successful campaigns are some casualties—the most prone to a lethal blow is its "shining knight," the Kansas Wildlife Federation. The Kansas Wildlife Federation rode in on worthy legal "steed" and fought the good, but expensive, battle. Out of the legal victory came some mortal financial wounds, which are finally taking their toll.

On Dec. 11, Jerry Hazlett, executive manager for the Kansas Wildlife Federation, announced his most difficult decision in that pivotal role of this Kansas citizens' conservation and recreation organization: he has laid himself off for 1994 because of a lack of funds. Rather than threaten the mission of KWF and its future—which includes Outdoor Education Camp for educating Kansas children and its new grass-roots initiative, the Pure Water for Kansas campaign, which will train and organize Stream Team captains all over the state to monitor and restore their streams, wetlands, reservoirs, and groundwater sources—Jerry has taken the difficult "road not taken," and the hope is that this will make all the difference for Kansans for generations to come.

If you care about Cheyenne Bottoms, whether for waterfowl hunting, upland game hunting, or shorebird watching, then maybe you should remember the Kansas Wildlife Federation.

If you care to help the KWF out in this difficult time, either by renewing your membership early or with a donation, please contact it at (913)266-6185 or write: Kansas Wildlife Federation, P.O. Box 5715, Topeka, Kansas 66605.

(signed) Larry Zuckerman  
South Central Regional Director  
Kansas Wildlife Federation

—Wichita Eagle, 9 January 1994  
(submitted by David Edds, Emporia)

## SENIOR STUDIES SLIPPERY SUBJECT

Some would say the only good thing for a snake is a swift chop on its neck with a hoe. Eric Wenger, who has spent the past few months studying the scaly reptiles, wouldn't agree.



Wenger has trapped more than 200 snakes at the Sand Prairie Natural History Reservation for his senior project in environmental studies at Bethel College.

The college bought the 80-acre tract half a mile from Harvey County West Park so students could study the land and its natural inhabitants.

Wenger's project is to monitor declines or increases in the populations of various snake species.

Wenger said his study will be compared with previous data collected by [KHS member] Dwight Platt, professor of biology and the head of environmental studies at Bethel College.

Platt has studied snake population trends in the Sand Prairie area for more than 40 years. His study looks at the relationship between predators and their prey.

Snakes are an important part of the ecological chain, he said.

Wenger said he chose the snake population study at Sand Prairie because he wants to work as a supervisor at a county or state park after graduation. It also allowed him to stay near his wife, Kristi, who teaches kindergarten at Roosevelt Elementary in Newton.

Wenger said he enjoys talking to younger students about his work with snakes. He has visited several elementary schools and always takes a forked-tongued friend so the children can see a live snake.

"There's usually mixed reaction to the snake," he said. "Most of the kids seem fascinated, and about 80 percent want to at least give the snake a tentative touch."

He is scheduled to visit Kristi's class next semester, but he doubts she'll want to pet a snake.

From May through mid-July, Wenger checked about 35 trap stations twice each week. The trap is a thin sheet-metal fence, partially buried, that sticks up slightly above ground, and both sides have funnel opening that intercepts movement.

A snake, Wenger said, will go around an object but not over it. When the snake tries to go around the fence, it is caught in the mesh wire trap. Several snakes may be caught in one trap. Wenger said he would bring back eight to 20 snakes each trip.

To transport the snakes to the science lab at the college, Wenger dumped the snakes into a cloth sack and put them in large glass fish tanks with sliding screened lids.

The snakes were weighed, measured, and their sex determined. Then Wenger would feel the snake's stomach to determine what kind of food it had at its last meal. Snakes have slow metabolisms, Wenger said, so during the three or four days they were kept in the lab they don't need food, just water.

Wenger marks each captured snake by clipping a series of scales on its underside. The clipped area forms a scar so the scales don't grow back.

The snakes are returned beside the trap where they

were caught, and the identification enables the snakes' whereabouts to be monitored.

Species common to the Harvey County area and other parts of Kansas include the Western and Eastern Hognose Snakes [*Heterodon nasicus*, *H. platirhinos*], Eastern Yellowbelly Racer [*Coluber constrictor flaviventris*], Bullsnake [*Pituophis catenifer*], Western Plains Garter Snake [*Thamnophis radix haydeni*], Red-sided Garter Snake [*T. sirtalis parietalis*], Common Kingsnake [*Lampropeltis getula*], and Glossy Snake [*Arizona elegans*]. None of these species are [venomous].

A [venomous] snake native to the area is the Massasauga [*Sistrurus catenatus*]. However, during the years that the area has been studied, only one has been caught, and that was 10 years ago, Wenger said. This fall, however, a Massasauga was killed by a farmer two miles west of Newton, he added.

The snakes eat a variety of animals and insects, including frogs, grasshoppers, and mice. The eating habits, reproduction, and movement of the species affect population.

Census studies are important in determining the relationships among species, Wenger said. "If one species is altered, it affects the populations of other species," he said.

Wenger said he didn't much like the idea of working with snakes before he began his project, but he has developed a respect for them.

"Once I learned how to properly handle them, I felt a lot more comfortable with them—at least the ones I've worked with," Wenger said. "I'd still be wary of the species I'm not familiar with."

Kristi's heart hasn't warmed to the slithering reptiles during her husband's study.

"But," Wenger said, "one thing she does appreciate is that they eat mice. She hates them even worse."

—Wichita Eagle, 16 December 1993  
(submitted by David Edds, Emporia)

## NATURALIST CONVERTS PART OF KC INTO SWAMP

Bob Jenni ran into a problem when he brought his exhibit to the Kansas City Sportshow this week.

How do you make a population of swamp creatures feel at home in the less-than-tropical winter climes of Kansas City? That's a challenge that could stump the best of visitor bureaus.

But Jenni, a naturalist from Edmond, Oklahoma, came up with a simple solution. He turned up the thermostat in the room where he and his collection of reptiles and amphibians are spending the week in Bartle Hall.

By the time he was done, it was a toasty 80 degrees and the Alligators, Snapping Turtles, and snakes of the the

"Gator Swamp Alive" exhibit were basking in comfort.

Alligators lurked menacingly in pools, only their eyes jutting above the water. An Alligator Snapping Turtle hissed [sic] and snapped at the air when it was pulled from its domain and exhibited for a photo. And snakes in aquariums coiled and rattled their tails as visitors approached.

Welcome to the Kansas City swamp.

"I would turn the heat up even further if I could, but it would be so hot that people would be sweating. We wouldn't have anybody in here," Jenni said with a laugh. "But this is what the animals like.

"We have to keep them warm. We transport them in a heated trailer with a generator and we're checking the temperature back there every 15 minutes.

"They're pretty much pampered."

Indeed, Jenni's collection of swamp creatures had celebrity status when they came to Kansas City. Sportshow visitors lined up to get a glimpse of the creatures that fascinate yet instill fear in many.

"How big is that Alligator Snapping Turtle?," one visitor asked Jenni.

"That one weighs about 125 pounds," Jenni answered. "It's somewhere between 40 and 60 years old."

"How about the Alligators," another visitor asked.

"The biggest one is 8½ to 9½ feet long," Jenni answered. "It weighs about 200 pounds.

"But that isn't even a big one. They grow a lot bigger than that."

With that, an elderly woman instinctively took a step back and said, "This is about as close as I ever want to get to one of those."

As a naturalist who often displays snakes and other creatures of the wild at sports shows, Jenni is accustomed to such reactions.

But his goal is to bring about a better understanding of some the reptiles and amphibians that people fear. His is not a sideshow. He doesn't wrestle Alligators, nor does he perform death-defying stunts with his snakes.

Rather, he displays them and uses them as visual aids for his talks on the value of wildlife.

"When people see wildlife, they don't stop to think that they're involved in mental therapy," Jenni said. "They always come away refreshed."

Jenni has had a life-long fascination with wildlife. After overcoming his fear of snakes at a young age, he became enthralled with capturing snakes and displaying them. By the time he was 14, he was working at the Tulsa Zoo and contributing to much of the facility's reptile display.

"I tagged along after the zoo director so closely that I got black eyes from running into his elbows," Jenni joked.

By the time Jenni was 25, he took on a new challenge—

capturing Alligators for display in zoos. He will never forget his first encounters.

"I was working with the Oklahoma City Zoo at the time and we got permits to collect Alligators in Florida," he said. "The state assigned rangers to help us and we waded out into the marshes in the Everglades, using cypress poles we had cut to poke at the water and search for Alligators.

"I'll never forget the first one we found. A ranger poked around in this deep pool, and the water just exploded. Jaws snapped and that Alligator just started thrashing. I got a rope on him and we got him up to the bank, but it was a struggle. That Alligator was 11½ feet long."

Since then, Jenni has been on countless trips collecting Alligators and has experienced his share of close calls, including one in which his thumb was shredded by the jaws of a large 'gator.

While most Alligators are afraid of humans and will do anything they can to avoid contact, Jenni maintains a healthy respect for them, especially the large ones.

"The Alligator is one of wildlife management's biggest success stories," Jenni said. "At one time, we were in danger of losing them.

"But through measures to protect them from poaching, they have come back in great numbers. The only problem is that for the first time, we're seeing Alligators reaching sizes of 13, 14, 15 feet long in some areas.

"To those Alligators, humans are no longer viewed as an unidentified moving monster to be feared. We're a morsel.

"That's why we're seeing an increase in Alligator attacks in some areas."

Still, the Alligator does more good than harm in Jenni's eyes. Even in subtle ways, the reptile benefits the environment.

"A female Alligator can literally create habitat in the marsh," Jenni said. "When she is laying eggs, she'll dig down until she finds water, then use her tail to fan out a pool.

"Well, birds flying over see this little pool of water in the swamp and they pitch down to use it. Maybe they are carrying seeds on their feet and they fall off. Pretty soon a cypress tree is growing there, and we're seeing a cycle again."

—Kansas City Star, 16 January 1994  
(submitted by Willie Bartram, Slim, Oklahoma)



## FEATURE ARTICLES

### DISTRIBUTION OF THE TIMBER RATTLESNAKE (*CROTALUS HORRIDUS*) IN CHAUTAUQUA, ELK, AND MONTGOMERY COUNTIES, KANSAS

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The timber rattlesnake (*Crotalus horridus*) is a viperid snake that occurs in the eastern half of the United States. The western edge of its range extends to the eastern third of Kansas (Conant and Collins 1991), where the species occurs along heavily vegetated, rocky outcrops (Collins 1993).

The timber rattlesnake was listed as a "Species in Need of Conservation" in Kansas by the Kansas Department of Wildlife and Parks (KDWP) in May 1992 (Rundquist 1993), and is protected in 12 states throughout its range (Brown 1993). Considerable research has been conducted on this species in the eastern portion of its range, but little work has been done in Kansas. The only current research on the timber rattlesnake in Kansas is the continuing work on state snake populations by Henry Fitch (Brown 1993).

The primary objective of my research was to determine distribution and habitat use of *C. horridus* in Chautauqua, Elk, and Montgomery Counties, Kansas.

#### Materials and Methods

Timber rattlesnake distribution and habitat use were studied by: 1) searching (on foot) appropriate habitat and areas reported to have *C. horridus* in Chautauqua, Elk, and Montgomery Counties; and 2) road cruising. The number of person-hours in each area was recorded. All sightings of *C. horridus* were recorded on a county road map, and the type of habitat present in the area they were found was noted. KDWP provided permits to collect timber rattlesnakes.

This research was conducted from May-October, 1993. During that time, 70 person-hours were spent searching, by foot, areas with appropriate habitat. In Montgomery County, 28 person-hours were spent searching four sites; 22 hours were spent investigating four sites in Chautauqua County; and 20 hours were spent at two sites in Elk County. One site in Elk County was examined twice because I had observed

*C. horridus* there during summer 1992. The size of the sites I searched ranged from 60-120 acres, but only likely *C. horridus* habitat in each area was investigated. Another 30 hours were used road cruising in the three counties studied: 14 hours in Chautauqua County; four in Elk County; and 12 in Montgomery County.

#### Results

Six specimens of *C. horridus* were found during this project, and all were located by road cruising. Five specimens were DOR.

Five specimens were found in Chautauqua County. One was found in June, three in mid-July, and one in late October. Three of these snakes were documented by Bill Ramshaw, a Conservation Officer for KDWP. The first specimen was found alive near Sedan City Lake<sup>1</sup>. The habitat surrounding the lake is primarily woodland. The second specimen was observed near Elgin in a woodland area. The third specimen was found south of Sedan near a woodland area.

I found two *C. horridus* in Chautauqua County. The first snake was located on 6 June 1993, and the second was found 23 October 1993. Both specimens were observed near open grassland.

I also found one specimen in Montgomery County, which constitutes a new county record for this species. It was found 8 August 1993. The nearby habitat was primarily grassland. This specimen was preserved and sent to the herpetological collection of the University of Kansas Museum of Natural History.

No *C. horridus* were found in Elk County, although I had observed one specimen there in August 1992. It was found along a woodland edge had just consumed an adult fox squirrel (*Sciurus niger*).

Although no specimens of *C. horridus* were located in the sites I searched on foot, seven other species of snakes were observed. One, the Rough Earth Snake (*Virginia*

*striatula*), was found in Chautauqua County and is a Species in Need of Conservation. Other species observed were: Flathead Snake (*Tantilla gracilis*), Racer (*Coluber constrictor*), Rat Snake (*Elaphe obsoleta*), Coachwhip (*Masticophis flagellum*), Rough Green Snake (*Opheodrys aestivus*), and Common Garter Snake (*Thamnophis sirtalis*).

### Discussion

Collins (1993) noted that *C. horridus* inhabits heavily vegetated, rocky outcrops along partially forested hill-sides. According to Brown (1993), timber rattlesnakes are migratory, moving away from their dens in spring and back to their dens in autumn. During their spring field trip on 24-25 April 1993, members of the Kansas Herpetological Society found 13 *C. horridus* at a den in southwest Chautauqua County (Collins and Rundquist 1993). On 16 May 1993, Paul Shipman and I visited the den site but no timber rattlesnakes were observed.

During their migrations, *C. horridus* are sometimes found in other habitat types (Brown 1993). Three of the six specimens located during this project were found in open grassland areas. Local landowners state that they observe more rattlesnakes in August, during hay cutting season, than at any other time of year. *C. horridus* may use the food sources present in these grassy areas.

A secondary objective of this project was to find a population of *C. horridus* in Montgomery County. Although *C. horridus* had not been documented for this county, several factors led me to believe that they occur there. One is that the western edge of Montgomery County lies in the Chautauqua Hills, a physiographic region that extends into six Kansas counties from Oklahoma (Buchanan 1984). This region is characterized by primarily sandy soils with blackjack oak and post oak being the predominant trees. All other documentations of *C. horridus* in this area of Kansas (Chautauqua, Elk, and Wilson Counties) have been made in the Chautauqua Hills.

In 1990, James Arnwine, professor of biology at Independence Community College, found a timber rattlesnake in Montgomery County, but did not submit it for documentation. Arnwine's sighting is within ten miles of mine, and both are along the western edge of Montgomery County near the Chautauqua County border. In this general area, park rangers for the U.S. Army Corps of Engineers have also observed and occasional *C. horridus*. With my documentation, plus past observations, it seems that *C. horridus* does have a limited presence in Montgomery County.

After finding only six *C. horridus* during 100 hours of field work, I believe that long-term research must be implemented to better understand timber rattlesnake status and ecology in southeast Kansas. Timber rattlesnakes are extremely shy creatures, and will usually rattle only after

another animal comes within several inches of them (Oldfield and Keyler 1993), thus they are difficult to locate. Documentation of *C. horridus* natural history in southeast Kansas may rely on finding den sites and monitoring populations over long periods (Brown 1993).

### Acknowledgements

I thank Dr. David Edds of Emporia State University for his help throughout the course of this project, and Ken Brunson of KDWP for providing collecting permits and transportation. I thank James Arnwine of Independence Community College, Bill Ramshaw of KDWP, and Delbert Rye for their advice on where to find rattlesnakes. I would also like to thank Joe Collins of the University of Kansas Museum of Natural History, Doug Blex and Ed Miller of KDWP, Paul Shipman, James Sumner, James Strachan, David Dye, and Davy Dye for their assistance in the field and in the completion of this paper.

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<sup>1</sup> **Editor's note:** As the timber rattlesnake is a protected species in Kansas, specific localities for specimens cited by the author in the original manuscript have been eliminated from this article. This is done to prevent possible depredations on this species and will be standard policy of this Newsletter's editor for other protected species in Kansas. Those persons with a legitimate research or conservation interest may contact the author to obtain these localities.



# PACIFIC CHORUS FROG ABUNDANCE ALTERATIONS AS A RESPONSE TO ABSENCE OF LIVESTOCK GRAZING

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## Abstract

At the island of La Sierra de la Laguna, Baja California Sur, México, during September 1991 we established five transects of 625 m<sup>2</sup> inside a 2,400 m<sup>2</sup> 2-year-old enclosure. Each transect was paired with an equivalent transect outside the enclosure. On daily censuses during the afternoon, we censused both transect systems in search of active *Pseudacris regilla* individuals. During the searches, substrate availability and vegetation cover were estimated at both transects. *P. regilla* are more than ten times more abundant inside the enclosure, where the vegetation cover is significantly more dense than outside the enclosure. This species' response to livestock impact on such little studied sites in México is discussed.

Key words: Baja California Sur, *Pseudacris regilla*, livestock grazing, México, Pacific Chorus Frog

## Introduction

The Pacific Chorus Frog, *Pseudacris regilla*, is a small (1.9-5 cm) chorus frog with a wide distribution, including in its range the west coast of the United States of America, the southwest coast of Canada, and the Baja California peninsula of México (Stebbins 1982). In spite of its broad distribution, which includes a variety of habitats from sea level to as high as 3,540 m and which is generally locally abundant, previous studies concerning the ecological responses of their populations to human habitat alterations are lacking.

Most of the works regarding this species are devoted to its distribution (Bradford 1989, Reichman 1991), its behavior (O'Hara and Blaustein 1988, Perrill 1984, Rose and Brenovitz 1991), and even its physiology (Sherwood *et al.* 1986). No previous studies on this species have been conducted in the Cape Region of Baja California.

Absence of livestock grazing has been repeatedly associated with changes in vegetation diversity and structure (Michunes *et al.* 1988) and alterations in faunal abundance, including lizards (mainly lizards) (Bock *et al.* 1990, Janzen 1976), birds (Bock *et al.* 1984, rodents and lagomorphs (Linsdale 1946, Reynolds 1950, Heske and Campbell 1991), and even invertebrates such as ants (Heske and Campbell 1991). No previous studies have been conducted on anurans.

Also, most the studies previously performed concerning such vegetational and faunal responses have been done on grasslands of desert and semi-desert habitats (Anderson and Holte 1981, Brown and Heske 1990, Chew 1982, West *et al.* 1984).

The present work was developed on a tropical deciduous forest of México, which has been subject to livestock overgrazing for at least 200 years (Arriaga 1990, Arriaga and León de la Luz 1989), during which the impact of livestock grazing has profoundly changed the vegetation structure and composition of a biogeographic entity: the Cape Region (Arriaga and Cancino *in press*).

## Material and Methods

### Study Site

The study was performed at the La Sierra de La Laguna, Baja California Sur, México. La Sierra de La Laguna is a mountainous complex that runs from north to south in the Cape Region and reaches altitudes as high as 2,100 m. The vegetation of the zone comprises four main physiognomic-floristic associations (León *et al.* 1988): desert scrub, tropical deciduous forest, oak-pine forest, and pine forest. The tropical deciduous forest is the largest physiognomic-floristic unit of the region (Ortega 1990) and occupies approximately 20,000 hectares (Morelos 1988).

In the tropical deciduous forest, an enclosure system of four units of 2,400 m<sup>2</sup> has been established since 1989 at the Casas Viejas study site. During September 1991, we established inside one enclosure five transects 25 m in length and separated by 10 m, comprising thus a total area of 625 m<sup>2</sup>. Outside the enclosure, sufficiently far apart in order to maximize their distance to the fences surrounding the enclosure (35 m), but close enough to match as closely as possible the perennial vegetation and substrate conditions of the transect inside the enclosure, we established an equivalent system of transects, also with an area of 625 m<sup>2</sup>.

Comparison of chorus frog abundance was made by counting the number of frogs observed per given length of

time spent looking for them. Frogs were detected by their movements. All censuses were performed following different routes.

Around each trap station, the following characteristics were visually estimated for an area of 1 m<sup>2</sup>: percentage barren soil cover; percentage annual plants and grass height and cover; number and size of rocks, separated into three diameter classes (<20 cm, >20cm-<50 cm, and 50 cm) as well as their percentage cover; percentage fallen tree cover; tree density and specific richness; and finally, average tree height and cover.

### Results

During the course of this study, 26 chorus frogs were observed inside the enclosure system, whereas only two were seen outside (Table 1). As can be seen (Table 1), frog abundance differences between both sites are highly significant.

When considering microhabitat differences between the two study sites, remarkable differences exist among vegeta-

**TABLE 1. Number of Pacific Chorus Frog individuals found inside and outside enclosure**

Day	Outside	Inside
	N	N
1	0	3
2	0	4
3	0	4
4	1	9
5	1	6
Total	2	26

t=1.548; p < 0.05

tion structure and substrate availability (Table 2). However, the only significant differences found are those related to grass and herb cover and average height, which are larger inside the enclosure, and that related to the proportion of barren soil cover, which is considerably larger outside the enclosure.

**TABLE 2. Microhabitat characteristics inside and outside enclosure (the number between parentheses is the standard deviation). \* = p < 0.05, \*\* = p < 0.01, \*\*\* = p < 0.001**

	Outside	Inside	X <sup>2</sup>	p
Barren Soil Cover	59.182 (24.408)	21.827 (18.777)	63.930	***
Grass and Herb Cover %	10.364 (8.535)	53.077 (23.588)	176.032	***

Grass and Herb Height (cm)	6.450 (2.773)	36.154 (21.031)	136.795	***
Stone cover %	24.091 (21.543)	21.250 (20.424)	1.251	NS
Stone Diameter < 20 cm	5.750 (14.930)	4.846 (3.614)	0.169	NS
> 20 cm < 50 cm	2.250 (0.957)	2.692 (3.738)	0.040	NS
> 50 cm	1.167	1.231	0.004	NS
Fallen Tree Cover %	6.361 (14.334)	3.846 (11.209)	1.645	NS
Tree Density	1.846 (0.801)	2.091 (1.424)	0.016	NS
No. Tree Species	7	8	0.143	NS
Tree Height (m)	2.919 (2.20)	3.025 (1.840)	0.004	NS
Tree Cover %	57.500	69.000	2.300	NS

Other aspects of microhabitat compared (Table 2), those related to the structure, density, and diversity of perennial vegetation as well as fallen tree and stone cover and availability, do not show any significant difference.

### Discussion

Herpetofaunal responses to livestock grazing has been relatively little studied, although it has been found that grazing reduces lizard abundance (Jones 1981) and that lizards are quite sensitive to habitat changes manifested by livestock grazing (Bock *et al.* 1990). No previous studies have analyzed *P. regilla* population responses to the effects of livestock grazing, and certainly none have dealt with any ecological aspect of this species in the Cape Region.

*P. regilla* at Sierra del La Laguna are highly dependent on water availability (Alvarez *et al.* 1988) and it is known that throughout its range, *P. regilla* are chiefly ground-dwellers found among low plants (Stebbins 1982). This characterization is supported by this study: microhabitat features, such as grass and herb cover, play an important role in the success of this species.

As is seen in Table 2, the abundance and height of the grasses, as well as annual herbs, are considerably larger inside the enclosure. This could explain why more individuals of *P. regilla* occur inside the enclosure: they are more protected and food sources are more abundant in the ungrazed zone.

Livestock grazing could affect chorus frog density directly and indirectly. Indirectly, livestock might affect chorus frog density by altering the species composition of the vegetation, thus reducing protective cover and available food for

insects, which could affect insectivorous species such as *P. regilla*. Also, cattle may directly affect chorus frog populations by disturbing individuals and even crushing them while foraging on a specific area.

However, it seems necessary to study behavioral responses of specimens of *P. regilla* to direct and indirect effects of livestock grazing by experimentally altering cover and food in order to quantify such responses.

### Conclusion

It seems evident that it is necessary to experimentally study behavioral responses of *P. regilla* inside and outside studied transects. However, we herein establish an interesting difference between *P. regilla* populations in altered and unaltered habitats in a little-studied and fragile ecosystem: the tropical deciduous forest of Baja California Sur.

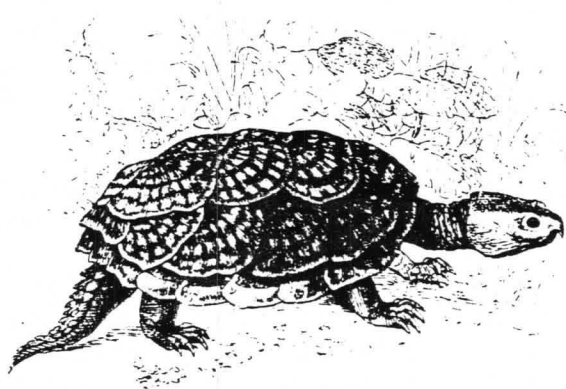
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## BOOK REVIEW

**Amphibians & Reptiles in Kansas, Third Edition, Revised** by Joseph T. Collins. 1993. University of Kansas Museum of Natural History Public Education Series No. 13. Distributed by the University Press of Kansas, Lawrence. 397 pp. 96 color plates, 106 b/w photographs, 93 maps. \$19.95 paperbound (ISBN 0-89338-043-1), \$29.95 clothbound (ISBN 0-89338-044-X) U.S.

Well, the long-awaited third edition of Collins' *Amphibians and Reptiles in Kansas* has arrived and you might as well relegate your old copy to that heap of books you keep as intellectual and historical curiosities. Although the format of this edition is essentially the same as previous editions, the content is radically different in a variety of ways. If you want to be up to date on Kansas herpetology (and herpetological taxonomy and philosophy), this is the book to have. All others are passé.

As stated, the basic format of the book is similar to previous editions, but there is one significant change that is immediately noticeable. This is first Kansas field Guide that contains full-color photographs of all but one species (Red River Mudpuppy) of an entire vertebrate group. These photos, by Suzanne L. Collins, are uniformly excellent and fully illustrate the diversity of form and beauty of Kansas herps. I was particularly impressed with the following photos: Smallmouth Salamander, Cave Salamander, Gray Treefrog, Bullfrog, Texas Horned Lizard, Northern Prairie Skink, Six-lined Racerunner, and Rough Green Snake. Suzanne has certainly arrived as an outstanding wildlife photographer.

All distribution maps are completely updated and Kansas can now boast, due in large measure to the members of the Kansas Herpetological Society, the best known herp distributions for any state in the country.

Species accounts are also completely updated and most contain significant new natural history information.

The Kansas Amphibians and Reptiles bibliography now contains 1,258 references, revealing the vast amount of herpetology that has direct reference to Kansas. Not bad for an area that was once called the "Great American Desert." If anyone ever wrote anything about Kansas herps, it can probably be found in this bibliography.

Now, let's get to what is really new about this book. For starters, Collins has added four new taxa to the state's herpetofauna. These are: Boreal Chorus Frog (*Pseudacris maculata*), Texas Rat Snake (*Elaphe obsoleta lindheimerii*), Texas Garter Snake (*Thamnophis sirtalis annectens*), and Cottonmouth (*Agkistrodon piscivorus*). The addition of three of these four taxa (Texas Rat Snake, Texas Garter Snake, and Cottonmouth) is the direct result of field work by KHS members Larry Miller, Kelly Irwin, and Shane Eckhardt, respectively. Collins has also eliminated the



Broad-banded Copperhead (*Agkistrodon contortrix laticinctus*) from the state's herpetofauna after finding no evidence from preserved specimens that it ever occurred here.

The most significant difference between this book and previous editions, and indeed from other state herpetologies is in its taxonomic arrangements. Believe me, these changes are major and some may argue with Collins using this book as a bully pulpit of sorts for his views. I have no problems with his doing so and support his changes for the following rationale: it is the prerogative and, indeed, duty, of any honest scientist to present truth as he or she best understands it. Collins has chosen to apply the Evolutionary Species Concept (ESC) to the taxonomic status of a number of taxa in Kansas. He is well within his rights to do so and I believe he has made the correct choice, given our current understanding of evolutionary (some might say revolutionary) biology.

The ESC de-emphasizes subspecies and consequently this forces one to view such nominal taxa in a different manner. Consequently, the following taxa are raised from subspecific to specific status in this book: Red River Mudpuppy (*Necturus louisianensis*), Mudpuppy (*N. maculosus*), Strecker's Chorus Frog (*Pseudacris streckeri*), Hurter's Spadefoot (*Scaphiopus hurterii*), Southern Prairie Skink (*Eumeces obtusirostris*), Northern Prairie Skink (*E. septentrionalis*), Western Slender Glass Snake (*Ophisaurus attenuatus*), Western Worm Snake (*Carphophis vermis*), Great Plains Rat Snake (*Elaphe emoryi*), Western Fox Snake (*E. vulpina*), and Gopher Snake (*Pituophis catenifer*). The last seven forms are recognized as full species for the first time in this volume.

Although Collins does recognize some subspecies (pending additional studies on their validity) he notes that they have "limited biological significance" and de-emphasizes the concept as a whole. In line with this thinking, none of the proposed races for the Rough Green Snake nor the Lined Snake are recognized.

In keeping with other published taxonomic rearrangements, this book features some recent realignments. For example the family Iguanidae has been divided into some six or seven different families by Etheridge and Frost (1989). Therefore, such creatures as the Collared Lizard, Fence Lizard, and the Texas Horned Lizard are now listed in the families Crotaphytidae and Phrynosomatidae, rather than Iguanidae. This change reflects our current understanding of the evolutionary history of these animals. The name *Rana sphenoccephala utricularius* (Southern Leopard Frog) is used for the first time in accordance with a ruling by the International Commission on Zoological Nomenclature (the Supreme Court for taxonomic names). This reverses the usage in Conant and Collins (1992).

One rearrangement not included is that of Dick Vogt's on False Map Turtles (*Graptemys pseudogeographica*

complex) because it was published too late to be included in this tome. This rearrangement will be included in the next edition.

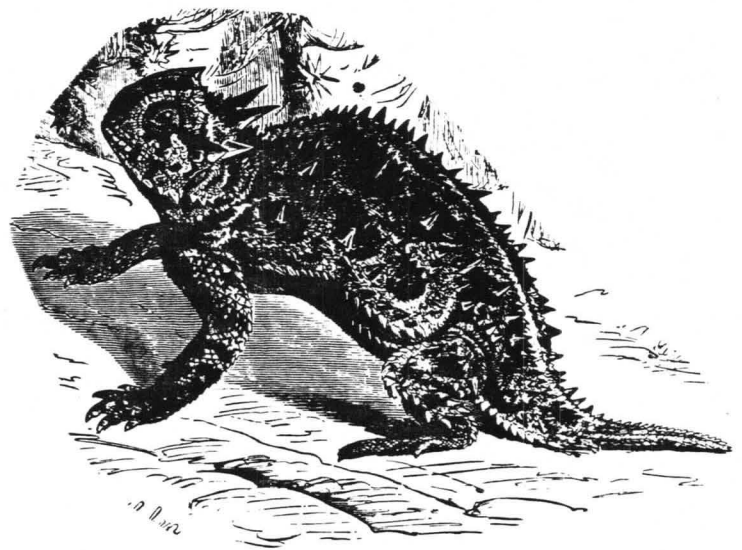
An additional taxonomic change is a rearrangement of snakes formerly included in the unnatural family Colubridae. Collins recognizes three families here: Colubridae, Natricidae, and Xenodontidae. Although this is a start on dealing with colubrids, I believe it is a little premature until more and better data becomes available, particularly with the proposed Xenodontidae, known to be an unnatural grouping (which Collins notes).

As you can see, quite a lot has happened in the science of herpetology since the second edition of this book. You may not agree with Collins' taxonomy but I believe it is best available at this time.

I do have a couple of minor complaints with the book. Both relate to photo reproduction. The black-and-white photos are uniformly muddy and washed out. Color plates 61-63 and 81-84 are also fuzzy in my copy. Both these problems are printing ones and do not reflect on the author.

All in all, this book is an excellent piece of work and the best of the available state herpetologies. It is a must have if you do any sort of field work in the state, want to know more about our herpetofauna, or enjoy fine photography. Don't leave home without it.

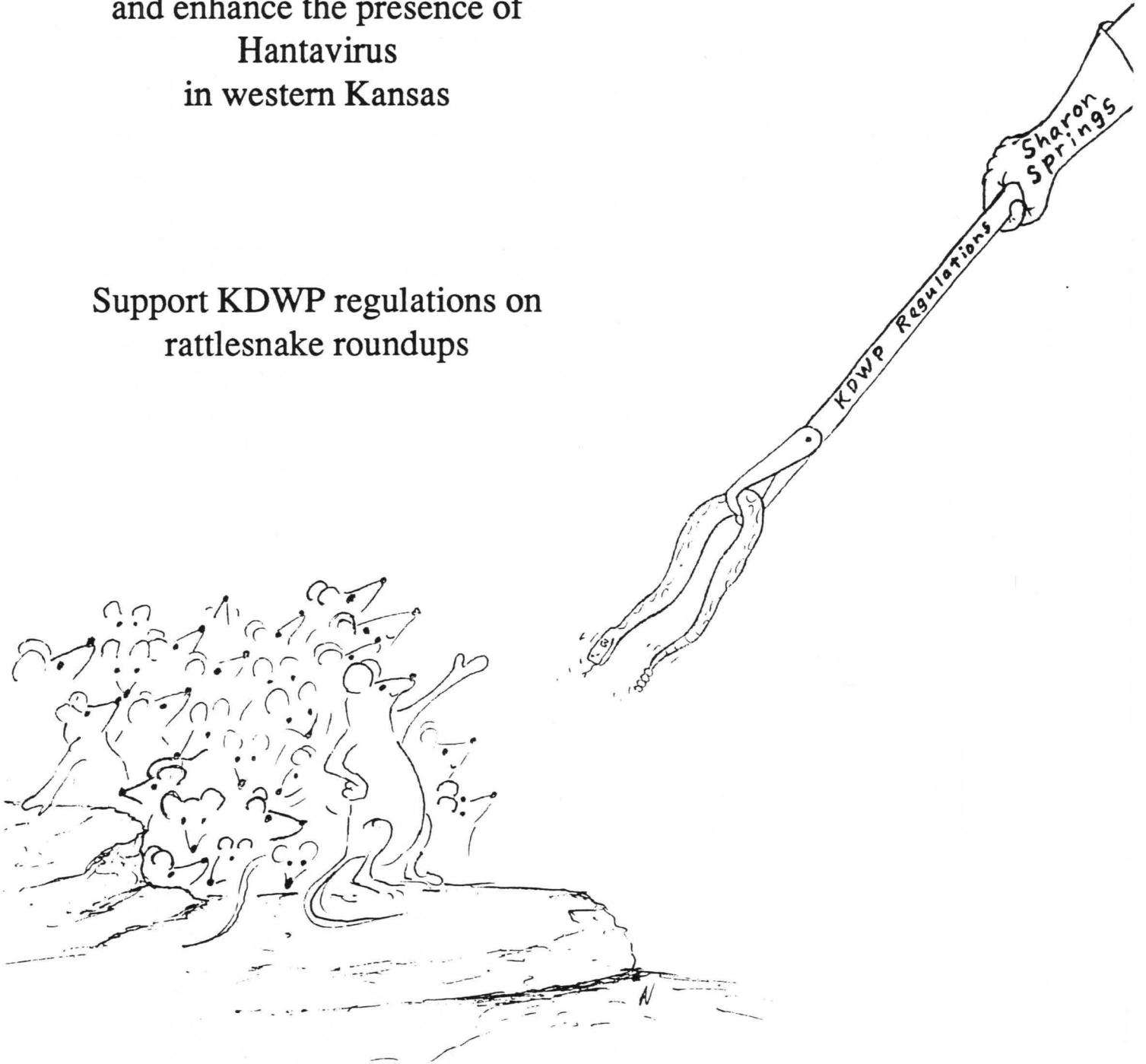
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Horned Lizard

Help protect our Deer Mice  
and enhance the presence of  
Hantavirus  
in western Kansas

Support KDWP regulations on  
rattlesnake roundups



Such a shame for Kansas